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ABSTRACT

How can school officials manage their responsibilities in ways that are likely to improve the quality of the product they provide? There is a logical sequence of activities. First, school officials must be able to diagnose where problems exist. Then they must learn to apply treatments systematically, to assess carefully the success or failure of the treatments applied, and last, but by no means least, to alter the treatment in accordance with the results of the assessment. No school system does all these things at present. Instead school officials are loathe to make decisions, and in those instances where decisions are made, they are even more reluctant to alter a chosen course of action based on the results of their efforts. These statements reflect three years of working closely with a large urban school system, that of Atlanta, Georgia. The bulk of this discussion is divided into five parts. The first section sets out the assumptions which shaped our work in Atlanta. The next two sections explain the technique developed for signaling extremes of relative performance and the uses and limitations of that kind of information. The final two sections describe the impact of information about relative performance on selected activities of Atlanta administrators. (Author/JM)

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PERFORMANCE INFORMATION: ONE SCHOOL DISTRICT'S RESPONSE

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PERFORMANCE INFORMATION: ONE SCHOOL SYSTEM'S RESPONSE

I. Introduction

Public education, especially urban education, is big business. The operating budget of each of the 20 largest school systems exceeds $100 million annually. Gone are the days of the one room school-house and the small, friendly school district where each administrator could rightfully claim to make decisions on the basis of what was "best" for little Johnny Jones, because the administrator actually knew Johnny and his problems. Today, administrators in big urban school systems regularly make decisions which affect thousands of Johnny Joneses in dozens of schools. And in education today, the consumers--students, parents, teachers, the community at large--are far from satisfied with the decisions being made. In short, public education is big business.....and it's in trouble.

Like all business, the major challenge facing education is to continually improve the quality of its product. But other businesses judge their success by public acceptance of their products, translated into a single simple standard.....profit. Not so public education. It has a virtual monopoly on the provision of education and no profit motive against which to gauge its success. More importantly, there is no agreement on how the success of public education should be measured or on how to interpret and use the imperfect indicators we do have.

Consider an example from the world of business. A manufacturer produces a 5-speed bicycle to sell for $99 and expects to make a $10

profit on each sale. Everyone agrees how a bike should perform and, so, the manufacturer knows immediately what to do to correct any problems with his product. If the bike won't stop, work on the brakes; if the handlebars are loose, tighten them. The diagnosis and treatment are the same, whether the bike is hand-made or produced on an assembly-line. The symptoms tell the manufacturer precisely where to look for the trouble and what to do about it. And of course, if the public won't buy the bicycle at all or the manufacturer can't produce his product and still return a profit, then he will go out of business.

But education is not that simple. First there is no agreement on how a good public school system should perform. There is no universal product in education: children differ and their educational needs differ. Consequently the proper diagnosis and treatment of one child's educational problems will not automatically succeed when applied to other children throughout a school system. Moreover, in education, unlike business, the relationship between the process and the end product of the effort is not completely understood. If a child can't read, does the fault lie with the child, his home situation, his health, his teacher, his textbooks and materials--or with a dozen other factors which may contribute to the problem? And finally, when all else fails, public education continues. As a "public good," attendance at school is compulsary for about 10 years. The customer cannot simply refuse to buy the product. And for most customers, there is no practical alternative to public education.

So, how should administrators of large school systems behave? How can school officials manage their responsibilities in ways that are likely to improve the quality of the product they provide? What treatment will

work--in which situations and for which students? There are no pat answers to these questions. But, I submit that there is a logical sequence of activities which taken together should improve the quality of public education. First, school officials must be able to diagnose reliably and accurately where problems exist. Then they must learn to apply treatments systematically, to assess carefully the success or failure of the treatments applied, and last, but by no means least, to alter the treatment in accordance with the results of the assessment. No school system does all of these things at present. Instead, school officials are loathe to make decisions, and in those instances where decisions are made, they are even more reluctant to alter a chosen course of action based on information about the results of their efforts.

These statements reflect three years of working closely with a large urban school system in an attempt to improve the system's capacity to plan and manage its activities. The school system was Atlanta, Georgia. At first, my colleagues and I at The Urban Institute concentrated on developing a technique which would locate examples of the relative success and failure of similar schools in teaching basic skills. Once the technique was developed, we, as researchers, stepped back and monitored the actions of school officials to see how, if at all, they would use hitherto unavailable information to make decisions about the day-to-day operations of the school system.

The remainder of this presentation is divided into five parts. The first section sets out the assumptions which shaped our work in Atlanta. The next two sections explain the technique we developed for signaling extremes of relative performance and the uses and limitations of that

kind of information. The final two sections describe the impact of information about relative performance on selected activities of Atlanta administrators.

II. Assumptions

We began our work in Atlanta with a set of assumptions about the operations of any large, urban school district:

1. That school system administrators (from principals on up) are managers who make decisions involving the allocation of resources expended on the educational process (resources in the sense of dollars, allocation of instructional materials, teaching staff, time of special staff, etc.).

2. That most large school systems already have an abundance of data about students and their performance which can be organized in new ways to provide concise, easy to understand information useful for managing the day-to-day operations of the schools.

3. That these administrators, while surrounded by data, make decisions on the basis of little or no current information about even those educational outcomes that can be measured. In fact, administrators usually don't know where to look for current examples of the school system's success or failure in teacing basic skills.

4. That management information should be based on performance and should use the school and the grade within a school--not the individual student--as the basic reporting unit, because decisions about how to allocate educational resources inevitably involve the school or the grade within the school as their lowest common denominator.

5. That management information which tells administrators where to look for current examples of success or failure should take into account the high correlation between student achievement in school and socio-economic background. Therefore, any system which identifies success or failure of the school system to teach basic skills should center on relative rather than absolute performance.

6. That if administrators had current, easily understood information about where to find extremes of relative performance, they would make "better" decisions--that is, they would begin to target more precisely the limited resources available to improve the quality of public education.

These assumptions guided the development of information for Atlanta administrators which enabled them to locate specific grades in individual elementary schools in which the level of average student performance was significantly better or worse than average student performance in schools of similar economic level.

III. Signals of Relative School Performance

The approach we used in Atlanta compared performance among schools serving similar students, identified significant cases of extreme performance, and displayed the results as a series of charts in which red "signals" denote levels of relatively low performance and blue "signals" denote levels of relatively high performance. In this project, we used mean (average) achievement on the annual standardized tests as the measure of performance. Schools were identified as similar based on the level of student participation in the free and reduced-priced lunch program. Since entry into the free and reduced price lunch program is determined by family size and income, the percent of students who participated in this program provided an indicator of the percentage of poor students at each school. [This variable alone accounted for 50 to 80 percent of the variation in average scores in each grade level, even though the variable represented the average participation of an entire school rather than an individual grade.]

To produce signals of relative performance for one grade, average scores on the reading and the arithmetic subtests for a given year were plotted against the amount of participation in the free and reduced-price lunch program for each school. The result of this effort was one

scattergram (like the one shown in the Figure A) for each grade and each subtest (7 grades x 2 subtests = 14 scattergrams for each year). The amount of participation in the subsidized lunch program, is shown along the horizontal axis; mean achievement, along the vertical axis. Atlanta schools at the end of the scattergram, labelled "High" participation, enrolled more students from poorer economic backgrounds. Each mark (+) on the scattergram represents the 5th grade average for all students who took the reading subtest at a particular school, plotted against free and reduced-price lunch participation for that entire school.

FIGURE A

RELATIONSHIP BETWEEN ACHIEVEMENT AND SUBSIDIZED LUNCH PARTICIPATION

Atlanta administered achievement tests in the seventh month (April) of each school year. Test manufacturers define the "national norm" for 5th graders who take the test then as 5.7. One look at the scattergram confirms that the average 5th grade scores of most Atlanta elementary schools in 1972 fell below the national norm. The signals developed in this project are <u>not</u> derived by comparing individual school averages with the national norm; rather, they result from comparisons of schools in Atlanta which have similar economic compositions.

The procedure for making relative comparisons is illustrated in the next figure. A basic curve, labelled C, was fitted through the data. Any point on the curve may be thought of as the achievement norm for a school whose rate of lunch participation placed it on an imaginary vertical line running through that point. Figure B includes four other curves, two above (A and B) and two below (D and E) that basic fitted curve, which define the boundaries of extreme or unusual relative performance. Boundaries were designed so that only clear cases of extremely high or low relative performance were signaled. Thus, only about 10-15 percent of the grades in all schools were signaled as cases of extreme performance in any one year.

Five categories of signals resulted from the approach illustrated in Figure B. When the level of relative performance fell within the shaded area around curve C, performance was not considered extreme and the grade received no signal. A grade in which the level of performance fell between the curves labelled A and B was signaled with a blue semi-circle. When the level of performance fell on or above curve A, then the grade was signaled with a full blue circle. When the performance

of a particular grade was relatively high, but the absolute level of performance was below the national norm, then the symbol ▬ was placed in the appropriate full blue or half-blue signal. When the level of performance fell between curves D and E, then the grade was signaled with a red semi-circle. When the level of performance fell on or below curve E, then the grade was signaled with a full red circle.

FIGURE B

DERIVATION OF SIGNALS

Since this technique compares performance only among economically similar schools, two 5th grades with the same absolute grade equivalent average can receive different signals. A 5th grade which had a grade

equivalent average of 4.9 in a school with many poor students might be considerably above the point on the performance curve for schools similar in terms of economic level; it would therefore receive a blue signal. However, a 5th grade which had the same grade equivalent average of 4.9 in a school with very few poor students might be considerably below the performance curve for similar schools and so would receive a red signal.

IV. What Signals Can and Can't Do

The signals for each elementary, primary and middle school in Atlanta were organized into compact displays like the one in Figure C.

FIGURE C

1973 SIGNALS

Each set of school signals was accompanied by data on the mean achievement score for each grade, subtest and year. This format enabled the user to see, at a glance, the status of relative performance at a school. Reading down a single column of one grid pictures the relative performance of all grades in the school in reading or arithmetic at one point in time. Reading across a row of one grid pictures the relative performance of different groups of students in the same grade over time. For a school in which student mobility is low, reading down a diagonal compares the relative performance of the same group of students over time.

Another display of signals (Figure D) was prepared for use primarily by staff in the 5 geographic Area Offices. The reading and arithmetic signals for every school in an Area for one year were arrayed on a single sheet of paper. Staff in the Area Office and elsewhere throughout the central administration of the school system received a set of Area sheets for each year since 1971. This method of displaying signals enabled an administrator to see at a glance the relative performance of every grade in all schools (as many as 30) in a geographic area.

Several important facts about performance in Atlanta's schools emerged from this approach to the use of achievement test data. First, most grades in the schools were <u>not</u> signaled because the signaling system locates only extremes of performance, conservatively defined. Second, in three years of signals for approximately 130 schools per year, there was not a single school in which <u>every</u> grade was signaled in both reading and math. Moreover, the pattern of relative performance within any school usually differed from one subtest to the other; the relative performance of students within the same grade on different subtests was also markedly dissimilar.

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What do the signals do for school officials? They simply show administrators where to find problems and successes in teaching basic skills. The signals do not explain why the condition exists or what to do about it. They represent only the first step in the orderly process for improving public education referred to earlier. Armed with information about both successes and failures, the administrator is in a position to select, apply and assess a particular treatment and then to alter the treatment according to its results.

V. The Search for Impact in Atlanta

What happened in Atlanta? Would school system administrators respond to the new information about performance and use it in routine decision-making? Let me first tell you a little about the Atlanta school system, to provide a basis for understanding what happened next. The Atlanta school system has an enrollment of nearly 90,000 students in 150 schools. The student population is 80 percent black and 20 percent white. The school district, at the time of this project, was divided into 5 geographic sub-districts, called Areas. Each was headed by an Area Superintendent, responsible for the day-to-day operation of the schools within his geographic Area. The Area Superintendent reported directly to the Superintendent. Each Area Office had a support staff composed of experienced teachers (called Resource Teachers) whose job was to provide assistance to the principals and teachers in individual schools. Specialized support functions such as personnel, finance, instructional services, research and development, and buildings and facilities were handled by separate staff divisions each headed by an Assistant Superintendent who reported directly

to the Superintendent. Thus, the school system's basic line management structure was supported by a fairly large and complex bureaucracy, with indistinct organizational lines and overlapping functions.

To determine the impact of the new signal information on this system, we narrowed the focus of our inquiry to those portions of the Atltanta school system which (a) had some immediate, direct impact on the classroom and (b) were able to respond to signal information within the span of a single school year. Specifically, we sought to determine the impact of information about relative school performance on three important activities of the school system: (a) the recruitment, assignment and reassignment of staff; (b) the design of the instructional program and the provision of instructional material; and (c) efforts to improve the skills of classroom teachers. We made the assumption that changes in staff, the instructional program or the skills of teachers could improve the performance of students in the classroom and hence could affect the pattern of signals.

In Atlanta, these activities usually involved four administrative units: Area Superintendents and their staffs, the Divisions of Personnel and Instruction, and the school principal. Through extensive interviews, surveys and data analyses, we attempted to determine whether the newly available information was used by these school officials in decisions about staffing, the instructional program and staff development activities. Specifically, we hoped to find out some of the following:

1. Effects on the Recruitment, Assignment and Reassignment of Staff. Decisions about school staffing involve principals, Area Superintendents, and the Personnel Division. Prior to the introduction of signals, decisions about the recruiting and placement of new teachers did not appear to be influenced by data on student

performance in the grade where a vacancy existed. Neither did student performance appear to enter into decisions about the reassignment of existing staff or the composition of the staff at a school or in a grade. Would signal information affect decisions about the desired skills or characteristics of new teachers, the placement of new teachers, the reassignment of existing staff, the staffing of an entire school?

2. Effects on the Instructional Program. After consultation with teachers, principals, Area Office staff and members of the Instruction Division, changes may be made in the structure, content or materials of the instructional program in a grade. Would signals be used by any of these parties in decisions about where to change the instructional program or which changes to make? Would staff of the Instruction Division or the Area Office attempt to associate extremes of relative student performance with particular textbooks, instructional approaches or organizational arrangements?

3. Effects on Efforts to Improve the Skills of Teachers. Improvement in the skills of teachers can be made in several ways: through the provision of direct assistance to the teacher by another member of the school system's staff or through the teacher's participation in in-service training programs. Area Resource Teachers, who are curriculum specialists assigned to Area Offices, regularly provide direct assistance to classroom teachers and also conduct workshops and supervise other in-service activities. The Instruction Division also organizes in-service programs. Would signals influence the way in which Resource Teachers allocated their time or effort spent in direct assistance to teachers or decisions about which teachers to assist? Would signals be a factor in decisions by principals or Resource Teachers to refer teachers to in-service training courses? Would signals be used to determine the subjects of in-service programs?

Signal booklets, composed of the signals for each school in an Area and the mean achievement scores for the schools were distributed to Atlanta personnel in October of 1972, accompanied by an explanation of the derivation and meaning of signals. Monitoring of the three activities cited above continued throughout 1972-73 in an effort to determine how, if at all, the signal information was used.

VI. The Results

How did Atlanta administrators react? Were the signals used in the

activities listed above? The short answer is that signals were used hardly at all. Atlanta administrators, from principals on up through the ranks, liked the signal booklets and praised their form and manner of presentation. However, we found only a few instances where the information about relative performance was used to trigger the diagnosis of performance and/or reshape program activities. In the activities singled out for scrutiny we found:

1. Effects on the Recruitment, Assignment, and Reassignment of Staff. There was almost no evidence that Altanta personnel shifted their efforts to grade levels in schools which were signaled as having either extremely high or extermely low performance. Area Superintendents continued to transfer teachers between schools without regard either to the performance of the students in the home school location or the performance of students in the new school assignment.

2. Effects on the Instructional Program. Neither student performance information in general or signal information in particular played a part in the selection of textbooks or in discussions of how to alter the instructional program at a school. The signals failed to trigger investigations into the ingrediants of either apparent successes or problems in teaching basic skills.

3. Effects on Efforts to Improve the Skills of Teachers. Area Resource Teachers showed no inclination to use signal information in a systematic way in decisions about which classrooms to visit and how much time to spend with a teacher. No Atlanta official reported using performance information in deciding what in-service programs to offer or in determining who should participate.

Does the Atlanta experience mean that we should give up on the idea of using performance information to improve the management of large urban school systems? I think not--for several reasons. At the beginning of this presentation, I described a logical sequence of activities which I consider essential to improving both educational management and quality. Those activities involve (a) accurate diagnosis of problems, (b) the systematic application and evaluation of educational treatment and (c) the use by educational administrators of information from the evaluations to redesign the treatment applied.

The Atlanta project concentrated only on the first step in this sequence: the provision of reliable and accurate information about the relative performance of students in mastering basic skills. Our work in Atlanta has shown that information on performance will not by itself alter the decisions and actions of school officials. Information about relative performance is merely a tool for improving educational management; and, like all tools, its uses and limitations must be learned through trial and error. No one knows precisely how much administrators should rely on performance information in making decisions. In fact, in education, we have much to learn about which techniques will improve the quality of education, about the relationship between factors which influence performance and about how to measure the as yet unmeasurable aspects of learning.

Even under the best of circumstances, performance information will be only one factor used by administrators to make decisions. And 1972-73 was certainly not the best of all circumstances for the Atlanta school system. It was a year of tremendous uncertainty as the whole school system awaited the decision of the federal court in a desegregation suit. That decision, when it finally came in April 1973, resulted in a substantial number of changes in the top staff of the school system, as control passed from whites to blacks. In addition, geographic area boundaries were redrawn; some pairing of schools and limited busing of students was ordered. At the same time, a new city charter completely changed the method of election to the school board and control passed from a white to a black majority. On top of all that, declining enrollment necessitated the closing of a dozen schools and the resulting transfer of students and

staff. All of these external pressures made Atlanta personnel reluctant to strike out in any new directions.

Thus, our experience in Atlanta has shown that it will take time for objective information about results--no matter how understandable and easy to use--to supplement professional judgment or political reality in the management of public education.